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Nos. 22230 and 22230A

In the

United States Court of Appeals

for the Ninth Circuit

Pacific Coast Engineering Company, a corporation, *Appellant*, vs. Merritt-Chapman & Scott Corporation, a corporation, *Appellee*.	

Brief of Appellee

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TABLE OF CONTENTS

APPENDICES

TABLE OF CASES AND AUTHORITIES

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Appellant,

vs.

MERRITT-CHAPMAN & SCOTT CORPORATION, a corporation,

Appellee.

Brief of Appellee

I.

INTRODUCTORY STATEMENT OF THE CASE

Pacific Coast Engineering Company (Paceco) agreed to supply hoists for use in the fishways of the Priest Rapids Dam and Merritt-Chapman & Scott Corporation (Merritt-Chapman) agreed to pay a fixed sum for them.

The size of the hoists to be provided was to be determined by Paceco as provided in the specifications. In due time Paceco proposed to tender hoists of a specified size. Merritt-Chapman was instructed by the Engineer to reject this proposal for the reason that the hoists proposed were

far too small. Merritt-Chapman advised Paceco to provide larger hoists capable of performing as required by the contract. Paceco refused to do so unless it was paid more money, contending that the specifications should be interpreted so as to require hoists which, by Paceco's own admission, will not do the job they are required to do; and that the hoists proposed by it conformed to the specifications so interpreted.

Merritt-Chapman, contending that the specifications can and must be interpreted so as to provide hoists which will do the job that they are required to do, and that Paceco's proposed hoists were far too small on any interpretation, cancelled Paceco's contract and bought larger hoists elsewhere.

Paceco sued Merritt-Chapman for its lost profits. Merritt-Chapman counterclaimed for damages equal to the extra cost of buying the larger hoists elsewhere.

The trial court found Paceco's proposed hoists did not comply with the contract, that Paceco refused to supply larger hoists unless paid more money, and gave Merritt-Chapman judgment on its counterclaim for the cost of obtaining the larger hoists elsewhere.

The foregoing facts emerge from reasonably complex engineering calculations. The Evidence, Findings and Conclusions will be more easily understood if, at the outset, we provide this Court with the following statement of the case, which is later more thoroughly developed, with appropriate references to the record.

The Priest Rapids Dam is shown in Exhibit AL. It includes 18 Telescopic Orifice Entrance Gates (OG Gates), 7 Left Entrance Weir Gates (LEW 1, LEW 2 & 3), 3 Right Entrance Weir Gates (REW 1, 2, 3), 1 Right Flood Draw-

down Stop Gate (RFDS), 1 Left Flood Drawdown Stop Gate (LFDS), 1 Gravity Supply Intake Gate (GIG), 1 Supply Conduit Closure Gate (CCG), 1 Surface Control Gate (SC-1), and hoists to lift them.

Generally speaking, the gates are rectangular steel frames, covered with steel plates, on one or both sides, with heavy rubber seals along their edges to make them water tight.

The gates are fitted with wheels at their sides so that they may move down, when closing, and up, when opening, along steel guides.

They are fitted with steel links on the top of their upper beams to which cables are attached so that they can be lifted by their hoists.

In some instances, the OG Gates, for example, the gates are composed of two "leafs", or sections, so that when fully raised the lower leaf hangs from the upper leaf, and the length of the gate is the combined length of both leaves; and when fully lowered, the upper leaf slides down behind the lower leaf, after the lower leaf comes to rest at the bottom of its channel, and the upper leaf then is supported by a wheel stop plate attached to the guides.

These features can, with some trouble, be seen in Exhibits AL 1 and 2.

Whenever the gates move, they must overcome enormous frictional and hydraulic forces resisting movement.

There is friction where the wheel surfaces make contact with the guides, called "wheel rolling friction", and where the bearing surfaces make contact with the axles, called "wheel bearing friction".

The heavy rubber seals are deflected from their normal shapes where they make contact with the surfaces adjoin-

ing the gate edges and pressure is exerted on these surfaces by reason of the tendency of the seals to return to their normal shape, causing friction between the seals and the adjoining surfaces, called "seal deflection load".

Where the water on one side of the gate is higher than on the other, the great pressure is exerted against the gate and seals from the high side and is transmitted to the seal surfaces. This pressure, called "hydraulic load", increases seal deflection load, if it operates in the same direction as the seal deflection load, and it relieves seal deflection load, if it operates in the opposite direction.

All of these various frictional forces are much greater when the gate starts to move (static, or breakaway, frictional forces, or loads) than they are after the gate has started to move (running or moving frictional forces or loads).

The gates had to be made heavy enough to move downwards under the force of gravity. If they were not heavy enough as originally constructed, then ballast had to be added to increase their weight as much as necessary.

Since they could not *start* to move downwards without overcoming static or breakaway loads, they had of necessity to be of a weight in excess of breakaway loads. This is a fact of common, as well as engineering, experience.

In addition, the specifications required that they have extra weight to provide a "factor of safety", called "Gate Motion Factor of Safety", to insure closure.

The specifications provided for the Factor of Safety in the following words:

> "3. *Gate Motion Factor of Safety.* All gates shall have a minimum factor of safety in motion of 1.50 under normal loading conditions. This motion factor of safety shall be defined as equal to the ratio of the dead weight of the gate plus any ballast required divided by the sum of the resisting forces (wheel fric-

tion, rolling friction, and seal friction)." (Ex. 4; Finding 7, C.Tr. 187).

In addition, the specifications stated the necessary coefficients of friction, for both static and running conditions, so that both static and running resisting forces could be calculated.

Notwithstanding that 1.5 times running friction is less than static friction and produces gates that will not move at all, much less with a factor of safety, Paceco interpreted the specifications as requiring gates weighing 1.5 times running frictions.

For this reason, and by reason of numerous other more serious errors and omissions in its hoist calculations, the hoists proposed by Paceco were much too small.

Nevertheless, Paceco persistently refused to correct its calculations or to supply larger hoists unless Merritt-Chapman agreed to pay it more money. Accordingly, Merritt-Chapman cancelled this part of Paceco's contract, negotiated reduction in the factor of safety from 1.5 static frictions to 1.25 static frictions, and bought the necessary larger hoists from another supplier.

The Court gave Merritt-Chapman judgment for the excess of the price for which Merritt-Chapman bought the larger hoists, over the price for which Paceco agreed to supply them.

II.

SUMMARY OF FACTS* FOUND BY THE TRIAL JUDGE

The contract for construction of the Priest Rapids Dam on the Columbia River required Merritt-Chapman & Scott Corporation (Merritt-Chapman), the Contractor, in a manner approved by Harza Engineering Company (Harza),

*A Chronological and Summary Statement of Evidence is found in Appendix 1.

the Engineer, (1) to determine the weight of gates heavy enough to close under the force of gravity, with a factor of safety intended to insure closure, (2) to determine the capacity of hoists necessary to lift such gates, without overload, and (3) to provide such gates and hoists for use in the operation of its fishways. (Finding 5, CT 186; Finding 7, CT 187; Finding 12, CT 188).

Determination of the weight the gates would have to be in order to go down is done by calculation of the forces resisting movement. These are various frictions and hydraulic pressures and are greater when the gate starts in motion (static resisting forces) than they are after the gate has started to move (running resisting forces). The plans and specifications gave the coefficients of friction and other design criteria, with which, knowing the dimensions of the gates, one could calculate the required weight of the gates and hoist capacities.* (Finding 6, CT 187).

At the invitation of Merritt-Chapman, Appellant Pacific Engineering Company (Paceco) and Pacific Car and Foundry Company (Pacific) prepared bids for both the hoists and gates, stating prices for each separately, and submitted their bids to Merritt-Chapman. In preparing their bids, Paceco and Pacific prepared calculations of the weight of the gates and capacity of the hoists required by the contract. (Finding 13, CT 188).

In response to the Paceco and Pacific bids, Merritt-Chapman offered the gates to Pacific and the hoists to Paceco at the prices specified respectively by each in its bid, with the proviso that Paceco and Pacific exchange all necessary information. Paceco and Pacific assented. (Finding 14, CT 189).

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*An Example Hoist Capacity Calculation is set forth in Appendix 2.

A Chart showing the calculations in evidence and their relationship to the gates and to each other appears in Appendix 3.

Subject to the requirement of Harza's approval and the isk that it might lawfully withhold it, Paceco's subcontract equired it to calculate the required hoist capacities and to lesign and supply hoists in accordance with the contract. Finding 15, CT 189).

Paceco proceeded to prepare and submit to Merritt-Chapman, for transmission to Harza for approval, calculations of hoist pulls, using the gate design and dimension nformation supplied by Pacific. In making the calculations vhich it submitted to Harza, Paceco did not rely on anything said to it by either Merritt-Chapman or Pacific, excepting the dimensions involved in Pacific's gate design. Finding 20, CT 191). Rather, Paceco adhered to the estimating calculations prepared by it in making its bid, which ncluded errors and omissions of Paceco's origination, both heoretical and mathematical, causing resulting hoist capacities to be far too low. (Findings 16, 17 and 18, CT 191). Neither Merritt-Chapman nor Pacific nor anyone else assumed Paceco's responsibility for calculation of hoist capacities. (Finding 19, CT 191).

When Harza examined Paceco's calculations, it rejected hem because of their errors and consequent inadequate ioist capacities. (Finding 22, CT 191).

Paceco, rather than correcting its calculations, defended hem, and Merritt-Chapman was forced to make the revised calculations of correct hoist capacities. (Finding 23, CT 192).

When Merritt-Chapman advised Paceco of the capacities required, Paceco did not perform, or offer to perform under protest reserving its right to extra compensation if its original calculations were correct. Rather, it refused to proceed unless Merritt-Chapman capitulated to Paceco's demands for $85,285.00 of extra compensation. At this time

Paceco had expended only $11,000.00 on its $229,400.00 contract. (Findings 23 and 24, CT 192).

Faced with Paceco's failure and refusal to perform, with the fact that Paceco's work to date was valueless and with the necessity of proceeding promptly to obtain the necessary hoists in order to perform the prime contract and avoid the heavy penalties entailed in delays in completion, Merritt-Chapman cancelled this part of Paceco's work, negotiated a reduction in the factor of safety (from 1.5 to 1.25 times static resisting forces) and consequent gate weight and hoist capacity, and bought the hoists of reduced capacity elsewhere for $46,823.00 more than Paceco's price of $229,400.00. (Findings 25, 26 and 27, CT 192, 193).

Paceco then sued Merritt-Chapman for lost profits, claiming that the smaller hoists which it planned to provide were all that the contract required, and that its errors were the fault of others, in any case.

Merritt-Chapman counterclaimed for its damages equal to the extra costs incurred in obtaining the larger hoists elsewhere.

The District Court, after observing the witnesses and hearing their testimony, reported in 1234 pages of Reporter's Transcript, and after considering over 100 exhibits received in evidence, concluded that the hoists which Paceco claimed were large enough were in fact too small, that Paceco materially breached its contract by failing and refusing to perform it, that Merritt-Chapman had suffered damages equal to the extra expense of buying the hoists elsewhere, and was entitled to judgment in that amount, with costs.*

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*The portion of the Judgment awarding Merritt-Chapman the sum of $3,460.01 is not appealable, since it is based on the stipulation of the parties. (CT 194, Finding 29; CT 71, Stipulation Establishing Counterclaim).

III.

APPELLANT'S VERSION OF THE FACTS

Appellant's version of the facts ignores or contradicts parts of the Findings, without suggesting that they are not supported by the evidence, stating contentions of fact made to and rejected by the Trial Judge (Opening Brief of Plaintiff, CT 72; Reply Brief of Plaintiff, CT 126). To this extent, the facts stated by Appellant must simply be disregarded.

IV.

QUESTIONS PRESENTED

1. Does the evidence sustain the Findings and Conclusions that Paceco breached its contract?

2. Does the evidence sustain the Findings and Conclusions that Merritt-Chapman had a right to terminate Paceco's contract?

V.

ARGUMENT

A. The Evidence Sustains the Findings and Conclusions That Paceco Materially Breached Its Contract.

(1) PACECO, NOT MERRITT-CHAPMAN, HAD THE DUTY TO MAKE, AND IN FACT MADE, THE HOIST CAPACITY CALCULATIONS.

The District Court so found. Findings 7, 15, 18, 19, 20 (CT 187, 189, 191); Memorandum of Opinion, pp. 5, 6, 7 (CT 159, 160, 161).

The Findings are sustained by the evidence.

From Exhibit 4, Specifications 138-100, it appears that:

The Prime Contract placed the duty to calculate hoist pulls on Merritt-Chapman as part of "Design". (Ex. 4; Specifications 138-100, Part I, Section 2-03).

As between Merritt-Chapman and Paceco, the hoist Subcontractor, and Pacific, the gate Subcontractor, this duty was placed on Paceco, as the following show:

(a) Hoist Pull Calculations Are Part of Hoist Design, Not Gate Design, Under the Specifications.

Section 2-03 of Specification 138-100 is labelled: "Design". Subsection B, headed "Design Loading; Conditions", speaks separately of gate design and of the work of determining hoist loads.

Subsection D, labelled: "Design Criteria", states the governing criteria and Subparagraph 5, labelled: "Hoists", provides: "(a) *Design Load.* The hoist capacity and design loading shall be determined from the weight of gate as governed by the above criteria, in addition to the following factors: etc."

Thus, the specifications show the calculation of hoist capacities is, as common sense suggests, part of the work of designing the hoists, not the gates.

(b) Hoist Pull Calculations Are Normally Part of Hoist Design, Not Gate Design.

In another phase of the Priest Rapids Project, Paceco contracted to furnish hoists and gates, and subcontracted the gates. Hoist pull calculations remained part of its work (RT 532-535), not the work of the gate manufacturer.

Calculation of hoist pulls is ordinarily the first step in designing a hoist. (RT 540, 542, 546).

(c) Paceco Intended and Understood That Hoist Pull Calculations Were Port of Its Work Under This Contract.

Paceco intended by its proposal for both gates and hoists (Ex. 3), to compute hoist pulls as part of its work (RT 318). Merritt-Chapman's order (counteroffer) of September 19, 1957, PR 2913 (Ex. 7), does not shift the burden of calculating hoist pulls. It orders hoists "in accordance with your proposal of August 7, 1957" and directs Paceco to exchange "all necessary . . . information required to insure

complete and proper design and manufacture of all . . . related parts . . . with Pacific Car & Foundry." Moreover, it conforms exactly to Paceco's hoist prices, which included a charge for hoist pull calculations as a part of design and an extra charge for the extra risks involved. (RT 333).

If Paceco had any doubt whether its work under PR 2913 included hoist pull calculations, that doubt was removed when Merritt-Chapman told Paceco it was looking to Paceco for design computations for submittal to Harza (Ex. 8). This occurred before Paceco accepted the Merritt-Chapman counteroffer on October 16, 1957 (Ex. Z).

Paceco did in fact compute hoist capacities and they were not "given" to Paceco by Merritt-Chapman or Pacific.

Appellant says:

> "1. MCS and Pacific provided hoist capacity calculations to Paceco for Paceco's use in performing its contract up until Harza disapproved the calculations (August 1957-February 1958)." (Opening Brief on Appeal, p. 5)

Appellant so contended below. (Opening Brief of Plaintiff, Sections I and II, CT 75, 76). (RT 90, 711, 712; Ex. 12).

The District Judge found to the contrary. Findings 15, 18, 19 and 20 (CT 189, 190, 191). These Findings are not challenged and each is fully sustained by the evidence, as summarized in Appendix 1.

Appellant says that Merritt-Chapman, ". . . told Paceco to start work on all but two items, . . ." and that thereafter ". . . Paceco did a good deal of engineering and designing work . . . because MCS told it to." (Opening Brief on Appeal, pp. 5 and 6).

In its brief below, Appellant contended that Appellee is estopped to question the hoist calculations because Appellee agreed to them and ordered Appellant to proceed upon them. (Opening Brief of Plaintiff, Section VI, CT 92).

This contention was rejected by the Trial Court because it was against the evidence, as summarized in Appendix 1.

(2) PACECO'S CALCULATIONS SHOULD HAVE APPLIED, BUT FAILED TO APPLY, THE GATE MOTION FACTOR OF SAFETY TO STATIC RESISTING FORCES.

The Trial Court found:

Finding 7. The principal relevant portions of the contract documents are as follows:

Specification 138-100, Sections 1-01, 1-03, 2-01, 2-03, and 2-04, Contract Documents 138-2, SC-20.

Section 2-03, D, 3, which reads as follows:

> "*Gate Motion Factor of Safety.* All gates shall have a minimum factor of safety in motion of 1.50 under normal loading conditions. This motion factor of safety shall be defined as equal to the ratio of the dead weight of the gate plus any ballast required divided by the sum of the resisting forces (wheel friction, rolling friction and seal friction)",

is intended to insure closure of the gates.

Finding 8. It is a basic and generally applicable principle of engineering that "normal loading" or "design loading" conditions have reference to the most adverse conditions to which the equipment will normally be subjected. The conditions most adverse to movement of the gates, whether downward or upward, are static, rather than running, resisting forces.

Finding 9. One and one-half (1½) times running frictions is in the present case less than one (1) times static frictions. The gate motion factor of safety of 1½, if applied to running frictions, would produce gates which would not be heavy enough to close at all.

Finding 10. The true interpretation of Section 2-03,D,3, of Specification 138-100, requires that the gates, plus any

ballast, have a dead weight equal to or greater than 1½ times the sum of the resisting forces (wheel friction, rolling friction and seal friction) under static, rather than running, conditions.

Finding 17. Paceco knew when it made the calculations on which it based its bid: That Section 2-03,D,3, was intended to insure closure of the gates; that the weight of the gates had to exceed 1 times static friction in order that the gates would move at all; that a basic and generally applicable engineering principle is that "normal loading" or "design loading" conditions have reference to the most adverse conditions to which the equipment will normally be subjected; that whenever the gates move they must overcome static resisting forces; that static resisting forces, not running resisting forces, are the conditions with respect to which the gates and hoists were to be designed; that 1½ times running resisting forces is in the present case less than 1 times static resisting forces; that if the factor of safety required by Section 2-03,D,3, is interpreted as having reference to running resisting forces, the sole object of the Section, namely, to insure closure of the gates, would be wholly defeated; Paceco knew or should have known and at all material times that the factor of safety of 1½ required by Section 2-03, D, 3, has reference to static resisting forces. Nevertheless, Paceco proposed to supply hoists designed for gate weights equal to 1½ times running resisting forces only. It made other material errors and omissions in its gate weight calculations. In this connection, the Court finds the testimony of Witness Martin to be true and correct.

These Findings are sustained by the evidence as follows:

Finding 7, states, from Exhibit 4, the relevant section of

the plans and specifications and that the gate motion factor of safety is intended to insure closure.

From Plaintiff's Exhibit 4, Specification 138-100, it appears that the relevant positions of the Contract Documents are as follows:

Section 2-03 is labelled "*Design*"; Subsection B, headed "*Design Loading Conditions,*" requires the Contractor to follow the design criteria for both gates and hoists in determining hoist loads; Subsection D, labelled "*Design Criteria,*" states the governing criteria, and Subparagraph 5, labelled "*Hoists,*" provides "(a) *Design Load.* The hoist capacity and design loading shall be determined from the weight of the gate as governed by the above criteria, in addition to the following factors: . . ." (there are then given the various coefficients of friction for both starting and running conditions).

That the gate motion factor of safety was intended to insure closure is established by the testimony of the Chief Engineer of Appellant, Mr. Zweifel (RT 572-573), as well as by the testimony of Professor Franzini (RT 1104).

Finding 10 states that the gate motion factor of safety is 1½ times static resisting forces, not running resisting forces.

The evidence supporting this and the related Findings is as follows:

1. The gate motion factor of safety is intended to insure closure and Paceco knew it. (Findings 7 and 17, CT 189-190).

Paceco's Chief Engineer, Mr. Zweifel (RT 1611-1613), and Paceco's witness, Professor Franzini (RT 1104), so testified.

2. The gates had to weigh more than 1 times static resisting forces in order to move at all and Paceco knew it. Findings 9 and 17, CT 188-190).

Messrs. Zweifel and Franzini, again (RT 611-623, 1104).

3. A basic and generally applicable engineering principle, known to Paceco, is that normal loading or design loading conditions have reference to the most adverse conditions to which the equipment will be subjected. (Findings 8 and 17, CT 188-190).

Again, Messrs. Zweifel and Franzini so stated. (RT 619, 1108).

4. Static, not running, resisting forces are the most adverse of the conditions resisting movement, and Paceco knew it. (Findings 6, 7 and 17, CT 187, 190). (Messrs. Zweifel and Franzini, RT 611-618, 1109).

5. Gates weighing 1½ times running resisting forces will not start to move at all and Paceco knew it. (Findings 9 and 17, CT 188, 190; Ex. AA, Ex. AX; Zweifel, RT 617-623, 904; and Franzini, RT 1104-05).

6. Interpretation of the gate motion factor of safety to require gates weighing 1½ times running resisting, rather than static resisting forces, will wholly defeat the purpose of the factor of safety, namely, to insure closure, and Paceco knew it. Finding 17 (CT 190); (Zweifel, RT 618-623).

7. It is a general rule in interpretation of engineering plans and specifications to choose among alternatives the interpretation which works, rather than one which will not work, and Paceco knew it. (Zweifel, RT 618-623).

8. Since:

The gate motion factor of safety is intended to insure gate movement;

The gate motion factor of safety is 1.5 times frictional forces of some kind;

There are only two kinds of frictional forces, namely, running and static;

Gates will not move at all unless they weigh more than static frictional forces;

1.5 times running frictional forces is less than static frictional forces;

Therefore, the conclusion that the gate motion factor of safety is 1.5 times static frictional forces is inescapable, from a common sense standpoint, under the principles of interpretation used by engineers generally, and under the applicable rules of interpretation of contracts set forth below:

> "The contract must receive such interpretation as will make it operative . . . and reasonable . . . if it can be done without violating the intention of the parties." (Civil Code § 1643).
>
> "The writing will be interpreted as a whole and even part will be interpreted with reference to its general purpose." (3 Williston on Contracts, § 613.3).
>
> "An interpretation which gives a reasonable meaning to all its provisions will be preferred to one which leaves a portion of the writing useless or inexplicable." (3 Williston on Contracts, § 619).
>
> "Where the meaning to be given to an agreement . . . remains uncertain . . ., the following rules are applicable:
>
> (a) An interpretation which gives a reasonable lawful and effective meaning to all manifestations of intention is preferred to an interpretation which leaves a part of such manifestations unreasonable, unlawful or of no effect . . .".

Illustration of Clause (a):

"1. A grants B the exclusive right to manufacture certain pipes under patents owned by A. B promises to pay 'for the license hereby granted a royalty of 50¢ per 1000 feet on all pipes for an output of 5,000,000 feet or less per year, and for all pipes of an output of over 5,000,000 feet per year at the rate of 30¢ per 1000 feet'. The contract provides for two rates of payment, one on the first 5,000,000 feet, and the other on the excess, and not a rate of 30¢ per 1000 feet on all when the output is over 5,000,000 feet per year. The more literal reading is unreasonable, since it would involve a smaller payment for 6,000,000 than for 4,000,000 feet." (Restatement of Contracts, § 236(a) and Illustration 1).

"If the general purpose of a contract is ascertained, the language of its provisions must be construed with reference to that purpose and so as to subserve it." (17 Am.Jur.2d, Contracts, § 246 p. 637).

These principles are commonly applied in order to make a contract serve its known purpose:

McCready v. Bullis, 59 C.A. 286 (1922): Provision in a lease of a farm, requiring lessor to provide a "well", means a well sufficient to irrigate the farm, not any well.

Oberweise v. Poulos, 124 C.A. 247 (1922): Where a restrictive covenant is to take effect on approval of the signatures of 140 property owners, all of several owners of a parcel of property are a single 'property owner', not each, separately, a property owner.

Woolford v. Electric Appliance, Inc., 24 C.A. 2d 385 (1938): Where a lease of a market required the lessor to provide refrigeration display equipment, it means such equipment adequate to keep the meat cold.

Under these principles, the gate motion factor of safety has to be 1.5 times static, not running, frictions, since it is

intended to insure gate closure, and 1.5 times running frictions provides no such insurance, whereas, 1.5 times static frictions does.

Moreover, the phrase "in motion" reads "in the act, process, or incident of changing place of position", if we substitute for the word "motion" its dictionary definition. (Webster's New International Dictionary, Second Edition, Unabridged). Breakaway or static resisting forces are in effect when the gates are "in the act, process or incident of changing place or position", for it is only after motion starts that running resisting forces take effect (RT 707, 708).

(3) PACECO'S CALCULATIONS CONTAINED NUMEROUS ERRORS AND OMISSIONS WHICH WERE FAR MORE SIGNIFICANT THAN THE GATE MOTION FACTOR OF SAFETY ERROR.

Moreover, Paceco's hoist capacities were grossly inadequate by reason of numerous material errors and omissions in its calculations, other than its gate motion factor of safety error. Finding 17 (CT 190).*

These errors are numerous and of great variety. Examples, in the case of the OG Gates, are: failure to add sufficient ballast to see that the upper leaf will move inde-

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*The evidence of these errors and omissions is set forth in detail in exhibits in evidence as follows:

Gate	Paceco Final Calculations	Correction	Explanation	Paceco Prebid Calculation	Correction	Explanation
OG	AA	AN, AO	AW	S	BA	BD
LFDS	AC	AP, AQ	AY	N	BC	BF
RFDS	AC	AR, AS	AZ	M	BC	BF
LEW2&3	AA	AT, AU	AX	R	BB	BE

The evidence is sumarized in Exhibit BG.

Mr. Martin's testimony concerning these exhibits is contained in the Transcript, pages 857-962, and was believed by the District Court (Finding 17, CT 190).

pendently of the lower leaf; in determining deflection, Paceco used 3 lbs. per inch of seal, whereas, it should have used 4.5 lbs. per inch of seal; Paceco entirely omitted to calculate seal deflection loads for the upper leaf in determining the amount of ballast to be added to it; Paceco entirely ignored the effect of three feet head of water.

The upshot of this evidence is that, in order to lift gates of a weight merely equal to static frictions, Paceco's hoists would have been overloaded, in the case of the OG Gates, by 7,000 lbs.; in the case of the LEW Gates, by 6,000 lbs.; in the case of the RFDS Gates, by 4,000 lbs.; and in the case of the LFDS Gates, by 7,000 lbs.

Adding to the gate weights ballast to provide the gate motion factor of safety of 1.50 times static resisting forces would have increased the overload, in the case of the OG Gates, by 2,549 lbs.; in the case of the LEW Gates, by 1,744 lbs.; in the case of the RFDS Gates by 1,770 lbs.; and in the case of the LFDS Gates, by 1,893 lbs.

Thus, it appears that Paceco's proposed hoists were grossly underpowered by reason of its errors and omissions, ignoring its gate motion factor of safety errors.

4) PACECO'S PROPOSED HOIST CAPACITIES WERE TOO WEAK EVEN IN TERMS OF PACECO'S CALCULATIONS.

The Court found (Finding 11, CT 4) that hoists had to have a rated capacity of at least 100% of static forces resisting movement of the gates upward.

Mr. Zweifel, at the trial, said, at first, that rated or nominal hoist capacity need not be as great as breakaway loads. After extensive cross-examination, he finally admitted that rated or nominal hoist capacity had to equal or exceed breakaway loads (RT 553-590).

It appears that, in the cases of the LEW 2 & 3 Gates and the 18 OG Gates, Paceco's hoists were underpowered,

even in terms of their own calculations, as the Court found (Finding 22, CT 7; Ex. AA, Ex. AC).

B. The Evidence Sustains the Findings and Conclusions That Merritt-Chapman Rightfully Terminated Paceco's Contract.

(1) PACECO DID REPEATEDLY AND UNEQUIVOCALLY REFUSE TO PERFORM UNLESS MERRITT-CHAPMAN CAPITULATED TO ITS DEMAND FOR MORE MONEY.

The Court so found. (Finding 23, CT 8; Memorandum of Opinion, p. 11, CT 165).

The Finding is supported by the contemporary evidence, which shows that on February 21, March 10, April 25, June 4, September 8, September 12, and September 26 (Exs. C, AE, B, AJ, I; RT 157; Ex. 19), Paceco made demands for more money, culminating in refusals to proceed unless they were agreed to.

It is supported by Mr. Ramsden's reluctant concession at the trial:

(RT p. 219, line 7 through 23):

"Mr. Lennihan: Q. Mr. Ramsden, you, your company, absolutely refused to deliver to Merritt-Chapman any hoists other than those mentioned in the Merritt-Chapman letters of October 29th and January 16th, unless you were paid additional compensation; isn't that so?

A. No, that isn't so.

"The Court: What is so?

"The Witness: What is so is that we offered two or three different propositions, to deliver various types of hoists, either the original hoists or second hoists, but there was never any refusal.

"The Court: Now, I want to go to the gist of Mr. Lennihan's question. If you were going to deliver the hoists as specified on the dates mentioned, you were going to have to have more money; is that right?

A. On later dates, yes.

"The Court: That is what he asked you.

Based upon the documentary evidence, with or without the testimony of Mr. Ramsden, the District Court was clearly entitled to find, as it did, that Paceco refused to proceed with its contract unless Merritt-Chapman capitulated in Paceco's demand for more money.

(2) PACECO WAS IN ACTUAL, AS WELL AS ANTICIPATORY, BREACH WHEN MERRITT-CHAPMAN CANCELLED.

We have seen that Paceco was obligated to do the hoist calculation work. We have seen that Paceco tried and failed to supply suitable calculations for Bid Items 1, 2, 8 and 9. We have seen that it never provided calculations for Bid Items 3, 4, 5, 6, 7 and 10.

After its calculations on Bid Items 1, 2, 8 and 9 were rejected, it refused to provide further calculations, blaming others for its errors and claiming that others had the duty to do the hoist calculations. (Ex. AD, AE, AI, AJ, I). These were actual and continuing breaches.

As the Court said in its Memorandum of Opinion, at page 11 (CT 165):

> "Under California law a present breach of contract plus a repudiation of the contract results in a total breach of the contract. . . . The total breach excuses the injured party and gives rise to a cause of action for damages. Restatement of Contracts, Sections 313, 314, 317, 318 and 275; *Coughlin v. Blair,* 41 C.2d 587, 588."

Paceco's posture here was the same as the subcontractor in *Coughlin v. Blair, supra,* of which the Court said:

> "Defendants could not reasonably expect plaintiffs to continue indefinitely to treat the breach as partial (599) . . . Parties who have totally breached a contract cannot force performance on injured parties (603) . . . Damages are awarded in an action for breach of con-

tract to give the injured party the benefit of his bargain. (605) . . ."

VI.

CONCLUSION

For the foregoing reasons the Judgment should be affirmed.

Dated: June 17, 1968.

Respectfully submitted,

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CERTIFICATE OF COUNSEL

I certify that, in connection with the preparation of this brief, I have examined Rules 18, 19 and 39 of the United States Court of Appeals for the Ninth Circuit, and that, in my opinion, the foregoing brief is in full compliance with those rules.

Dated: June 17, 1968.

DAVID W. LENNIHAN

(Appendices Follow)

Appendix 1

CHRONOLOGICAL AND SUMMARY STATEMENT OF EVIDENCE

July 19 - August 7, 1957

Paceco prepared its estimating or prebid calculations for Items 1 through 10 (Exs. M through T).

August 7, 1957

Paceco made its bid, for hoists and gates separately, basing its prices on its prebid calculations. (Ex. 3)

August 23, 1957

Pacific sent Paceco a statement of the hoist pulls as calculated by Pacific thinking that Paceco might provide the hoists under subcontract for Pacific. (Ex. 5, RT 104, 105)

August 28, 1957

Paceco prepared a comparison of its hoist pulls with those of Pacific and noted wide discrepancies for Items 1, 2, 8 and 9. (Ex. U).

August 29, 1957

Paceco wrote asking to see Pacific's underlying calculations (Ex. V).

September 9, 1957

Pacific sent down calculations prepared for it by a naval architect (Brinck) (Exs. 6 and W). Paceco found these to be "completely irresponsible" (RT 717).

September 20, 1957

Paceco revised its own calculations on Items 1, 2, 8 and 9 by substituting the gate weights shown in Ex. W. (Ex. X). Except for this change, it ignored Pacific's calculations.

October 1, 1957

Paceco requested Merritt-Chapman to help in the resolution of the hoist pull problem (Ex. 9).

October 29, 1957

Merritt-Chapman transmitted to Paceco Pacific's underlying calculations (Exs. 12, 12A, 12B). Merritt-Chapman suggested Paceco proceed with design on items 1 through 7 and 10 where it and Pacific Car are in agreement. Paceco and Pacific were not in fact in agreement. Paceco assumed Merritt-Chapman was suggesting that Paceco proceed on the basis of its own calculations. (RT 750) Paceco knew that Merritt-Chapman was not "giving" any hoist capacities to Paceco (RT 711, 712)

Paceco proceeded with design work, not because Merritt Chapman told it to do so, but because Paceco elected to do so, in anticipation of Harza's approval, in order to save time and money, and subject to the risk of Harza's disapproval This is common practice. (RT 495, 543, 566; Memorandum of Opinion, pp. 8, 9; CT 162, 163).

November 19, 1957

Paceco revised its calculations for Items 1, 2, 8 and 9 to reflect the wheel and axle diameter shown in Pacific's calculations (Ex. 12B; Ex. AA). Except for this change, it ignored Pacific's underlying calculations.

December 9, 1957

Merritt-Chapman made certain comments and suggestions concerning sheets 3 and 4 of Ex. AA (Ex. AK).

December 23, 1957

Paceco responded to Merritt-Chapman's comments on sheets 3 and 4 by revising them in a way which largel

gnored Merritt-Chapman's comments. (Ex. AC, RT 498-00).

ebruary 4, 1958

Paceco transmitted to Merritt-Chapman for submittal Harza its hoist calculations for Items 1, 2, 8 and 9. (Ex. 6; Exs. AA, AC; RT 904). These calculations were based n Paceco's estimating calculations (Exs. X, AA, AC; RT 31, 432, 489-491, 499-500, 714, 715) with hoist calculations ggled to fit its bid price (RT 743-754). It did not then or ter submit any calculations for items 3, 4, 5, 6, 7, or 10.

ebruary 21, 1958

Harza told Paceco by telephone that its hoist capacities ere inadequate, and Paceco wrote Merritt-Chapman, blam-g Pacific and Merritt-Chapman, saying it would claim tra charges for extra design work. (Ex. C)

ebruary 24, 1958

Merritt-Chapman wrote Paceco transmitting Harza's let-r rejecting Paceco's calculations and asked for revisions s soon as possible. (Ex. AD)

larch 10, 1958

Paceco wrote Merritt-Chapman re-stating its demand for tra *engineering* compensation and asserting that Pacific ust provide the new hoist capacities. (Ex. AE)

larch 25, 1958

Merritt-Chapman sent Paceco computations of breaka-ay loads for the first 7 items (Ex. AF)

pril 14, 1958

Merritt-Chapman sent Paceco revised computations for e first 8 Items (Ex. AH).

April 25, 1958

Paceco wrote Merritt-Chapman to the effect that it will cost more money *per unit* because of the increase in hoist pulls and blamed these increases on Pacific Car's gate design and on the use of static frictions in determining the factor of safety. (Ex. B)

May 16, 1958

Merritt-Chapman wrote Paceco saying Paceco had contracted to provide the calculations and to design and provide adequate hoists and noted that Paceco had failed to discharge its obligations and that Merritt-Chapman undertook to do the hoist pull calculation work to save time. (Ex. AI)

June 4, 1958

Paceco wrote Merritt-Chapman reiterating its statement that increases in hoist capacities will result in increased charges and are caused by gate design. The letter persists in seeking to place responsibility for hoist pulls on Pacific Car. (Ex. AJ)

September 8, 1958

Paceco wrote Merritt-Chapman stating that it would not proceed with the contract until the hoist capacities were firmly established and the extra costs to be paid Paceco agreed to. The letter continues to fix upon others the responsibility for hoist pulls. (Ex. I)

September 19, 1958

Paceco told Merritt-Chapman (Mr. Harry Wilson) of the increased prices it was demanding. (Ex. 19; RT 157)

September 24, 1958

Merritt-Chapman cancelled Paceco's contract stating that it had been in default and breach for some time and that it had made it clear that Paceco would not comply with its agreements. (Ex. 18)

September 26, 1958

Paceco confirmed by letter the demands made by it orally September 12, 1958. (Ex. 19)

October 14, 1958

Merritt-Chapman purchased hoists from Berger Engineering Company for $267,263.00 (Ex. BH)

Appendix 2

Hoist capacity equals 100% times the most adverse forces resisting upwards movement of the gates of a weight equal to at least 150% times the most adverse forces resisting downwards movement of the gates.

Accordingly, you calculate as follows:

STEP 1 Calculate forces resisting movement downward *under the most adverse conditions.*

STEP 2 Be sure that the submerged gate weight equals or exceeds 150% times the resisting forces determined in STEP 1.

STEP 3 Determine the total forces resisting movement upwards *under the most adverse conditions.*

STEP 4 Set hoist capacity at 100% or more of the total forces calculated in STEP 3.

An example of such calculation is Exhibit Q, a pre-bid calculation prepared by one of Paceco's engineers. The calculation shows:

"Wheel-Rolling Friction Load:"

*

Step 1. "Starting, Lw = .025 x 31,300 = 1096#"
Step 1. "Running, Lw = .025 x 31,300 = 786#"

"Seal Friction":

Seal Load Area = 1.5 x 268 = 402 inches (Side Seal only)"
"Seal Hydro Load = 402 x 1.3 = 522"

*

Step 1. "Starting, Ls = 1.5 x 522 = 784#"
Step 1. "Running, Ls = 0.9 x 522 = 470#"

"TOTAL HOIST LOAD

(1) *Gate Submerged:*

Step 1. "Total friction load, starting, = 3(1880)* 5640*#"

Step 2. "Total wt. 3 leaves submerged = 8430#"

"(Safety Factor: = $\frac{8430}{*5640}$ = 1.5% — ok.†)"

Step 3. "(a)(starting): Total hoisting required: = 8430 + 5640 = 14,070#"

"Total friction load running = 3(1252) = 3,760#"

"(b)(running): Total hoisting required: = 8430 + 3760 = 12,190#"

"(2) *Gate Dry Load:* = 0"

"Total hoisting forces required: = wt. of gate dry = 9858#"

Step 4. "Design hoist to life live load of 7 tons."

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*Most adverse for wheel and rolling friction is Starting: 1096#
Most adverse for seal hydro friction is Starting: 784#

Total of frictions for each of 3 leaves of gate = 1880#
Total of frictions for all 3 leaves of gate = 3 x 1880 = 5640#
Total of most adverse resisting forces plus submerged gate weight = 14,070#

†Faetor of Safety here used is 1.5 x starting frietions (RT 511).

Appendix 3

Item	Gate	Est. Calc. 8/57	Pcf Pulls 8/23	Comparison 8/28	Brinck Summry. 9/9	1. Paceco Revision 9/20	Pcf Calc. 10/29	2. Paceco Revision 11/19	Gothro Comments 12/9	3. Paceco Revision 12/23	Martin's Corrections of Final Calc.	Martin's Errors & Omissions of Final Calc.	Martin's Corrections Est. Calc.	Martin's Errors & Omissions Est. Calc.	Martin's Calc. Summary
1	RFDS	M	5	U	W	X	12b	AA			AR AS	AZ			BF
2	LFDS	N	5	U	W	X	12b	AA			AP AQ	AY	BC	BF	BF
3	GIG	P	5	U	W										
4	CCC	O	5	U											
5	LEW 1, 2, 3	Q	5	U											
6	LEW 1	Q	5	U											
7	LEW 4	Q	5	U											
8	LEW 2, 3	R	5	U	W	X	12b	AA	AK	AC	AT AU	AX	BB	BE	BF
9	OG 1-18	S	5	U	W	X	12	AA	AK	AC	AN AQ	AW	BA	BD	BF
10	SC 1	T	5	U											

1. Based on Paceco's Estimating Calculations revised only to use Paceco's Gate Weights found in Ex. W.
2. Based on Ex. X revised only to use Paceco's wheel and axle diameters found in Ex. 12b. These are Paceco's Final Calculations for Items 1 and 2.